

Chapter 14

Management Considerations

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Wildfires continue to be a major threat to both cultural and natural resources at LANL. Weather conditions characteristic of the Pajarito Plateau, specifically periods of drought and high winds, are factors that play important roles in the potential for such destructive fires as the Cerro Grande Fire. No one could have anticipated the devastation caused by the Cerro Grande Fire; however, now that the potential of such a natural disaster has been witnessed, there are precautions that can be taken not only to help prevent such problems, but also to ensure that the Laboratory is better equipped to deal with such events in the future. Although we did have archaeologists out with firefighting crews, for a variety of reasons our ability to protect cultural remains from the Cerro Grande Fire was minimal.

LANL has already initiated a series of important steps that will help to reduce the potential for serious damage to cultural resources from future wildfires and other natural disasters in the vicinity of the Laboratory. These include a major tree-thinning program, which includes approximately 10,000 ac of Laboratory land, the construction of a new Emergency Operations Center to better coordinate emergency activities, and additional controls on the logistics surrounding the use of camps for emergency field crews.

As we have learned from the Cerro Grande Fire, even low-intensity fires can have detrimental impacts to certain classes of cultural resources. These impacts include the effects of the fire itself on wooden and masonry structural remains, the effects of unrestricted suppression activities, and the potential long-term effects of fire for localized flooding and erosion. Therefore, the information included in this report can be used as both a reference guide and a management tool even for those situations in which proactive long-term wildfire management is being actively pursued.

LESSONS LEARNED

Preparation of this report has provided many lessons about wildfires; fire impacts to cultural resources; and efficient and effective ways to evaluate, record, and analyze such impacts. With the help of sufficient funding, and a great deal of support from LANL and DOE, the CRMT has been fortunate for the opportunity to assess the damage to a large number of sites within a concentrated area on the landscape. As previously stated, wildfires, regardless of size, can have a serious impact on archaeological and historic sites. As we discussed in Chapters 5 and 6, the kinds of impacts are quite variable and influenced by multiple factors, including site type and location. By analyzing these factors and understanding which kinds of sites will sustain severe damage during a wildfire, we can begin to develop a working strategy for managing and protecting sites during such natural disasters. As discussed in Chapters 7–11, masonry

structures and historic wooden structures tended to suffer the most severe damage, while cavates and artifact scatters sustained alternative impacts. We can therefore use this information to prioritize site protection measures in the event of a future wildfire.

Increased threats from erosion appear to be one of the most common wildfire impacts and, because they are hard to assess, they are also the most difficult to mitigate. The CGFA Project Team had great difficulty creating a useful and meaningful characterization of “erosional threats.” We had several areas on the assessment form to provide specific information about the erosion at a site, including the degree of the slope upon which a site sits, an area to describe gullies in the site vicinity, and scouring. Ultimately, because there was such variation among the crews in this category, we have only been able to state that a site is subject to some degree of erosional threats.

Field crews used the categories “none, low, and moderate to high” to qualify the threat from erosion. We sometimes found it difficult to determine whether or not the threat was the result of the Cerro Grande Fire or simply the result of natural processes of erosion. Determining the duration of a threat also proved complicated; for instance, once ground vegetation and duff are replaced in burn areas, will sites be protected from erosion once again? To date, this issue has not been resolved, and for this reason we must work with other groups to develop methods for quantifying the threat that can then be used to create meaningful data concerning these impacts. In the interim, we will continue with monitoring and rehabilitation efforts that help to protect sites from existing threats.

MANAGEMENT STRATEGIES

There are four major management tasks that the fire assessment team hopes to accomplish in the next several years in terms of understanding and dealing with the Cerro Grande Fire at LANL. The first task is to conduct further analyses of the data gathered during the fire assessment project. These data will be included in summary reports, like this one, or in specific topical reports intended to assist resource managers at LANL and to provide insights into wildfire management that may be of use to other land management agencies.

The second management task, which has already begun, is the ambitious program outlined in Chapter 12, of rehabilitation and protection at selected Ancestral Pueblo archaeological sites on LANL property impacted by the Cerro Grande Fire. This program includes removal of snags and fallen trees, filling in stump holes, implementing erosional control measures (such as the use of straw wattles and the sowing of native seed), and the construction of fences and other protective measures for sites situated near fire roads and in the vicinity of designated emergency operations areas. As previously mentioned, these rehabilitation measures are being conducted using hand equipment to prevent inadvertent damage to the sites by motorized vehicles and other heavy equipment.

An important aspect of the rehabilitation project is that of cooperation with our neighbors from the Pueblos of San Ildefonso, Santa Clara, Cochiti, and Jemez. To this end, LANL set up direct contracts with the four Pueblos, through the auspices of the CGRP, to have them assist in the process of forest and cultural site rehabilitation. In forming this partnership, we specifically acknowledged that it was important to make every attempt to include the Pueblos in the management of their ancestral sites.

The third management task is to conduct immediate (within the next few years) albeit limited data recovery in conjunction with the heavily damaged Homestead period sites. As noted in Chapter 11, such data recovery has already begun with the collection of a number of tree-ring specimens for dendrochronological analyses from burned homestead cabins, fences, and related structures (Appendix I). In addition, there is the need to initiate detailed surface analysis and possible data recovery excavations in

those homestead artifact scatters that were impacted by the burning of surface duff and tree roots. The present evidence suggests that the exposure to fire has caused many classes of artifacts (such as glass and metal) in these deposits to begin a rapidly escalating cycle of degradation and decomposition; the fire largely destroyed other artifact classes including leather, wood, and botanical remains.

The fourth and final management task, as noted in Chapter 12, is to design and implement a long-term site monitoring program. This program will be used not only to monitor the damage incurred by selected archaeological sites, but will also be used to judge the overall success of the archaeological site rehabilitation program itself. We expect to use annual repeat photography together with other measures to track significant changes in the character of individual sites. This monitoring effort will be integrated into the larger program of archaeological site monitoring at the Laboratory as part of the LANL Cultural Resources Management Plan.

An emphasis must also be placed on the importance of public outreach and education. Many of the people who worked to control the Cerro Grande Fire were not familiar with the cultural resources characteristic of the Pajarito Plateau and as a result some sites sustained non-fire related damage. The CRMT must ensure that facility managers and emergency response crews are aware of what an archaeological site looks like and the most effective ways to protect such sites. However, even well-trained and -educated emergency crews are no match for proactive management strategies, which help to reduce the potential for future fires and other natural disasters that may impact cultural resources.

